Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _11/14/2005_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-9, 37-53 and 92-106_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _92-106_ is/are allowed.

6)☒ Claim(s) _1-9 & 37-53_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _25 March 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Response to Amendment/Arguments

1.	This action is in response to amendment filed November 14, 2005, which has been entered.

2.	Claims 10-36 and 54-91 have been cancelled and claims 97-106 have been added. Claims 1-9, 37-53 and 92-106 are still pending.

3.	In view of Applicant's amendment, the objection to the specification has been withdrawn. However, new objection regarding page 22, lines 1-2 has been found; see 3.1 below.

## 3.1	New objection to the specification

- Since each block of size $M \times N$ is assigned one of J labels (each indicating a scale, see lines 1-2 of paragraph 57 and lines 1-2 of paragraph 58), each segmentation S is selected from one of J^{mn} possible segmentations, where $m = R/M$ and $n = C/N$ for an image of size $R \times C$. In other words, there are a total of mn (m times n) blocks of size $M \times N$. Therefore, both superscripts $M \times N$ of line 1 and MN of line 2 should have been mn instead, where mn is the number of blocks of size $M \times N$.

	Appropriate correction is required.

4.   In view of Applicant's amendment, the 35 USC § 112 rejection of claim 95 has

been withdrawn.

5.   Applicant's arguments filed 11/14/2005 have been fully considered but they are

not persuasive; see below.

6.   **In remarks Applicant argued in substance:**

6.1   *that neither of the cited references describes or suggests "generating a granular*

multi-scale entropy distribution" (P. 12, last paragraph through P. 13, first

paragraph)

However, per the last four lines of paragraph 54 on page 20, a granular multi-

scale entropy distribution is obtained over local blocks. Since JPEG 2000 file

header information presented in table 1, page 14 of the specification (admitted

prior art) shows that the length of coded data, among other information, provides

entropy of each code block (see the first row of the table), the ECM that Queiroz

generates from a compressed stream [P. 370, Sec. 3, 1st and 2nd paragraphs] is

a granular multi-scale entropy distribution. Further, since JPEG 2000 is usually

more efficient than JPEG and the length of each coded block is readily available

from its header, one of ordinary skill in the art at the time of the invention would

have been motivated to apply the technique to JPEG 2000-coded images and, in

doing so, to obtain such entropy information from the header in order to achieve greater efficiency, because most decompression steps such as inverse VLC are not needed.

(Note that although claims 1, 4 and 7 have been amended to include "multi-scale" in the claim language, the above analysis shows that the original 35 USC § 103 rejections of claims 1, 4 and 7 and their respective dependent claims still apply.)

6.2   *that one would not be motivated to combine because Queiroz explicitly states in section 4.4 that the technique would fail at low resolution (P. 13, second paragraph)*

However, while in section 4.4 Queiroz indicates that his technique would not be robust if an image is acquired at a resolution of 75 ppi or lower but would be satisfactory at 300 ppi [page 374, right column, last 7 lines], since it is very common for images to be acquired at 300 ppi or higher, for many images the combined invention of Queiroz and the admitted prior art would produce robust results in applications such as segmentation. Therefore there would have been a very strong incentive for one of ordinary skill in the art at the time of the invention to combine.

(From Office Action Mailed 08/08/2005)

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 1, 3, 4, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Queiroz et al. ("Fast Segmentation of the JPEG Compressed

Documents," *Journal of Electronic Imaging, Vol. 7(2), April 1998*, pp. 367-377,

submitted as part of the IDS), further in view of APA1 (admitted prior art, see Table 1 on

page 14 of the specification).

9.   Regarding claim 1, and similarly claims 4 and 7, Queiroz discloses

- generating a granular entropy distribution; and
  applying one or more image processing operations based on the granular
  entropy distribution
  [P. 370, Sect. 3, 1st and 2nd paragraphs; P. 371, Sect. 4, 1st paragraph]

Queiroz does not expressly disclose that the entropy distribution is generated using
information obtained from a header of a compressed bit stream.

However, APA1 discloses that the required granular entropy distribution (e.g., the length
of coded data) is readily available in the header of a JPEG 2000-compressed bit
stream.

Queiroz and APA1 are combinable because they are from the same field of endeavor of
image compression/decompression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art
to modify Queiroz with the teachings of APA1 by extracting granular entropy distribution
from the header of a compressed bit stream. The motivation would have been to lower
the computation cost, since the information is readily available.

Therefore, it would have been obvious to combine APA1 with Queiroz to obtain the
invention of claim 1.

10.   Regarding claim 3, and similarly clams 6 and 9, further note that the image

processing operation disclosed in Queiroz (per the analysis for claim 1) is segmentation

and segmentation resulted in the labeling of different regions. (See also Queiroz, Sects.

4.1 through 4.1.4 of pp. 372-373, where clearly the result of the segmentation is the

classification of image portions into background, text and graphics, etc.) Moreover, only

information from the header is needed.

11.   Claims 2, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Queiroz et al. ("Fast Segmentation of the JPEG Compressed Documents," *Journal

of Electronic Imaging, Vol. 7(2), April 1998*, pp. 367-377) and APA1 (admitted prior art,

see Table 1 on page 14 of the specification) as applied to claims 1, 3, 4, 6, 7 and 9

above, and further in view of Jändel et al. (WO 00/01153, submitted as part of the IDS).

12.   Regarding claim 2, and similarly claims 5 and 8, the combined invention of

Queiroz and APA1 discloses all limitations of its parent, claim 1.

The combined invention of Queiroz and APA1 does not expressly disclose

- decoding only a portion of coded data in the compressed bit stream as
  part of applying the one or more image processing operations

However, Jändel discloses decoding only portions of coded data (regions of interest, the

regions being the result of segmentation). [See the abstract, especially the last three

lines.]

The combined invention of Queiroz and APA1 and Jändel are combinable because

they both have aspects that are from the same field of endeavor of

Compression/decompression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art

to modify the combined invention of Queiroz and APA1 with the teachings of Jändel by

decoding only a portion of the coded data. The motivation would, again, have been to

lower the computation cost, since no computation resource need to be spent on the

portions of data that are not of interest.

Therefore, it would have been obvious to combine Jändel with Queiroz and APA1 to

obtain the invention of claim 2.

13.   Claims 37-44, and similarly claims 45-53, are similarly rejected as per the

analysis of claim 2 above:

```
Claim 37. receiving header information corresponding to a bit stream of
          multi-scale transform-based compressed data representing image
          data;
          generating a feature vector corresponding to image description
          bits in the bit stream from the header information; and
          performing one or more operations on at least a portion of the
          bit stream based on the feature vector
          [Per the analysis of claim 2.  Note that the segmentation masks
          (e.g., Figs. 12-14 of Queiroz) obtained using the ECM (see the
          first paragraph of section 3 of Queiroz)are  considered a feature
          vector.  Note further that JPEG 2000 is a multi-scale, transform-
          based compression scheme]
Claim 38. the method defined in Claim 37 further comprising generating a
          distribution of the number of zero bit planes in one or more
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portions of compressed data, the distribution derived from the heading information
[Note that APA1 further discloses that the JPEG 2000 header contains the number of zero bit planes]

Claim 39. the method defined in Claim 37 further comprising generating an entropy distribution based on the header information
[Per the analysis of claim 2]

Claim 40. the method defined in Claim 39 wherein the entropy distribution is granular
[Note that per APA1, since the entropy information is for a code block, it is granular]

Claim 41. the method defined in Claim 39 wherein the entropy distribution comprises a map of bit distribution for the image data
[Note that the ECM (see the first paragraph of section 3 of Queiroz) is a map of bit distribution]

Claim 42. the method defined in Claim 39 wherein the entropy distribution is a length of coded data for code blocks
[Per APA1]

Claim 43. the method defined in Claim 37 wherein the header information is part of a JPEG 2000 file
[Per APA1]

Claim 44. the method defined in Claim 37 wherein one of the one or more operations comprises classification
[Per the analysis of claim 2]

(End of Excerpt from Office Action Mailed 08/08/2005)

Allowable Subject Matter

14.   Claims 92-106 are allowed.

15.   The following is a statement of reasons for the indication of allowable subject

matter:

16.   Regarding independent claim 92, and similarly claims 97 and 102, closest art of

record *International Standard ISO/IEC 15444-1 (First edition, Dec. 15, 2000)* on JPEG

2000 core coding system discloses a method for determining bit allocation (a kind of

entropy distribution) given a bit rate [Sect. J.14.3, pp. 215-216] and Florencio (US

6,775,325) discloses a method for changing bit rate without completely decompressing

the corresponding bit stream (by partially decompressing to obtain the transform

coefficients and then re-quantizing the coefficients to achieve the desire new bit rate—

see the abstract and Figs. 4-6). However, neither discloses nor teaches/suggests

estimating a new entropy distribution corresponding to a lower bit rate from that of a

higher bit rate.

Conclusion and Contact Information

17.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Yubin Hung whose telephone number is (571) 272-

7451. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
December 09, 2005

M. MEHTA
SUPER... EXAMINER
TECHNOL... 0